

REMARKS

The Office Action of October 16, 2008 has been carefully considered. However, Applicant respectfully disagrees with Examiner's rejection based on 35 U.S.C. 103(a). All claims are now present for examination and favorable reconsideration is respectfully requested in view of the following comments.

REJECTIONS UNDER 35 U.S.C. § 103:

Claims 6 – 10 and 12 – 14 have been rejected under 35 U.S.C. § 103 as allegedly being unpatentable over GILLIPSIE (US 5,633,397) in view of Chan (EPA 0206537).

Applicant traverses the rejection and respectfully submits that the embodiments of the presently claimed invention are not obvious over the cited reference because they are significantly different from the disclosure of GILLIPSIE and Chan. The main claim defines "A process for the preparation of a solid herbicidal formulation of N-(phosphonomethyl)glycine, in powder, granule or flake form, soluble or dispersible in water, consisting essentially of Glyphosate (N-(phosphonomethyl)glycine) in the form of ammonium salt and 5 % to 30 % by weight of a hydrosoluble tensioactive agent, which is solid at ambient temperature of about 25° C, said process consisting essentially of the steps of:

(a) mixing N-(phosphonomethyl)glycine with an equimolar quantity of ammonium bicarbonate and between 5 % and 30 % by weight of the solid tensioactive agent of the dry weight of the final mixture, at 25° C, wherein the solid tensioactive is selected from the group consisting of urea-supported ethoxylated alcohol, sodium methyl oleyltaurate, fatty acid polyoxiethylene ester and sodium dioctylsulosuccinate,

(b) kneading or mixing the resulting formulation until the mixture is completely homogenized, and

(c) granulating or flaking the homogeneous mixture and drying the obtained granules or flakes up to a moisture content of ≤ 0.5 % by weight; or drying the homogeneous

mixture up to a moisture content of ≤ 0.5 % by weight and grinding the resulting product to obtain a powder.”

The main characteristic of the process of this invention is based on that stage (a) comprises mixing Glyphosate, ammonium bicarbonate and a solid surfactant agent, substantially in absence of added water.

This means that stage (a) essentially consists in the mixture of three ingredients which are **solid at room temperature** and furthermore are **substantially not provided with water** (only Glyphosate, of technical degree, can have small quantities of water).

Moreover, as Applicant has previously demonstrated, the solid surfactant agents used in the process of instant application are **powdery solids**, such that can be noted that stage (a) of the claimed process consists in **a completely dry mixture of the powder ingredients**.

As originally pointed out in the description, in the examples and claims of the application, stage (a) of the claimed process **is performed at a temperature of 25° C** (room temperature).

In addition, it is important to emphasize that in stage (a) of the process of instant application **a solid-solid chemical reaction occurs between Glyphosate and ammonium bicarbonate**.

The mixture of ingredients in stage (a), independently of the sequence of addition of ingredients, is a mixture easy to mix and knead (stage (b) of the process) in conventional equipments and wherein the neutralizing chemical reaction between Glyphosate (acid) and ammonium bicarbonate (base) releases water and carbon dioxide favouring mixing and the complete neutralizing reaction without affecting the particulated texture of the mixture and ease of later manipulation (stage (c) of the process).

II.- NOVELTY OF THE PROCESS CLAIMED

As in the office action which is being responded to the Examiner has only rejected the claims on the basis of Section 35 USC 103 (a) (see pages 7 and 8 of the Office Action) referred to the nonobviousness requirement that inventions to be patented must comply with, and also the Examiner in the “*ultimate legal conclusion*” (see page 8, second paragraph of the office action) has literally set forth that:

“the subject-matter defined by instant claims would have been obvious within the meaning of 35USC 103(a)”.

Applicant can conclude that the Examiner has considered the claimed process in the application as novel when compared to prior art said Examiner has analysed, i.e., patent US 5,633,397 (Gillespie et al.) and application EP 0 206 537 A1 (patent EP 0 206 537 B1 to Chan et al.).

III.- NON-OBVIOUSNESS OF THE CLAIMED PROCESS

III.1-Analysis of patent US 5,633,397 (Gillespie et al.)

As mentioned previously, the Examiner has considered that the process disclosed in the current claims of this application is not patentable under rule 35 USC 103 (a) as said process “*would have been obvious to a person having ordinary skill in the art*” from the information disclosed in patent US 5,633,397 (henceforth “Gillespie”).

In order to demonstrate that the process of this application **not only is different from the processes of the prior art but also that it is not a methodology that a person skilled in the art would consider obvious from the information Gillespie disclosed**, Applicant analyzes what is disclosed in said document.

In the second paragraph of page 6 of the Office Action the Examiner explains why the Gillespie patent embraces Applicant’s invention:

"Gillespie teaches certain solid/solid reaction methods for making dry ammonium glyphosate. Reacting ammonium bicarbonate with glyphosate acid, described in French Publication No. 2.692.439 is believed to yield a dry ammonium glyphosate composition. In French Patent Publication No. 2.692.439 teaches a phytotoxic preparation comprising the monoammonium salt of N-phosphonomethylglycine as a powder or granule in combination with a wetting agent, surfactant and/o a pulverulent additive. Gillespie clearly teaches that the monoammonium salt is derived from reacting glyphosate acid with ammonium carbonate. See the entire document especially column 2, lines 25-33 and column 4, lines 55-61"

The Examiner has not opposed the invention of the Gillespie patent but the document FR 2.692.439 cited in columns 2 and 4 of that patent US 5,633,397.

Therefore, Applicant analyzes the full content of document FR'439 in order to **verify** if this document really teaches what it is written in column 2 (lines 25-33) and 4 (lines 55-61) of the Gillespie patent, namely that:

1) "In French Patent Publication No. 2.692.439 ... there is generally described a phytotoxic preparation comprising the monoammonium salt of N-phosphonomethylglycine as a powder or granule in combination with a wetting agent, surfactant and/or a pulverulent additive. As exemplified in the reference, the monoammonium salt is derived from reacting glyphosate acid with ammonium carbonate" (column 2, lines 25 - 33).

2) "As previously noted, certain solid/solid reactions methods are also known for making dry ammonium glyphosate. Reacting ammonium bicarbonate with glyphosate acid, for example, as described above in French Publication No. 2.692.439 is believed to yield dry ammonium glyphosate composition" (column 4, lines 55 - 61).

Regarding point 1, document FR'439 really describes, in example 1, the reaction of glyphosate acid with ammonium carbonate. **But this chemical reaction is carried out**

in an aqueous phase, and this chemical reaction is not carried out with ammonium bicarbonate.

In fact, in example 1 of FR'439 **glyphosate acid (solid) is sprayed over an aqueous solution containing ammonium carbonate.** Then, once the reaction is completed, the solution is concentrated by distillation and finally ammonium glyphosate is crystallized at ambient temperature (see page 7, last paragraph, of document FR'439).

Furthermore, when the pursued objective in this document is to prepare a dry phytotoxic composition, the recovered product (crystalline ammonium glyphosate) is next blended with solid inert diluents such as kaolin, silica, etc. (see page 6, paragraph 3 of document FR'439), **but this document neither describe nor exemplify any type of solid composition containing a solid tensioactive agent.**

Regarding point 2, this sentence included in the Gillespie patent is false.

In fact, document FR'439 neither describes nor exemplifies any solid/solid reaction method or a reaction between glyphosate and ammonium bicarbonate.

Document FR'439 only contains one example disclosing **the reaction of glyphosate acid with ammonium carbonate in an aqueous solution.**

Further, specification of document FR'439 only describes in general form that the salts of glyphosate can be obtained with appropriate bases: carbonates, ammonia and organic amines, but without mentioning ammonium bicarbonate or the physico-chemical characteristics of each process (see page 3, paragraph 4 of document FR'439).

In conclusion, Applicant respectfully points out that the Examiner's affirmation stating that "*Gillespie teaches certain solid/solid reaction methods for making dry ammonium glyphosate*" is not reflected in document FR'439, because:

- Document FR'439 neither describes nor exemplifies any solid/solid reaction method to prepare ammonium glyphosate;
- Document FR'439 neither describes nor exemplifies any solid/solid reaction method to prepare ammonium glyphosate by reacting glyphosate acid with ammonium bicarbonate; and
- Document Fr'439 neither describes nor exemplifies any solid/solid reaction method to prepare a solid herbicidal composition of ammonium glyphosate by mixing at 25° C glyphosate with an equimolar quantity of ammonium bicarbonate and between 5 % and 30 % by weight of a solid tensioactive agent of the dry weight of the final mixture, as it is claimed in present application.

It is important to point out that **the Applicant is not claiming a process to prepare ammonium glyphosate** by reacting glyphosate acid with an ammonium base. The Applicant's invention consists in **having prepared an herbicidal composition by mixing at ambient temperature, and in absence of added water, three solid components, glyphosate, ammonium bicarbonate and a specific tensioactive, which during and after the solid/solid chemical reaction produces a dry mixture easy to be mixed, kneaded and extruded.**

These characteristics of the Applicant's invention method not only are novel, as was recognized by the Examiner, but they are also non-obvious from the Gillespie patent disclosure or from the French document specification cited in that Gillespie patent.

Therefore, Applicant considers that the one skilled in the art would never be induced to reproduce the process of instant application starting from the teachings of both cited references (US and FR documents).

For which reasons, Applicant considers that the process claimed in instant application is not obvious when compared to the information Gillespie discloses.

III.2.-Analysis of application EP 0 206 537 A1 (now patent EP 0 206 537 B1, Chan et al.)

As mentioned previously, the Examiner has also considered that the process disclosed in the current claims of this application is not patentable under rule 35 USC 103 (a) as said process *“would have been obvious to a person having ordinary skill in the art”* from the information disclosed in application EP 0 206 537 A1 (henceforth “Chan”).

In order to demonstrate that the process of this application **not only is different from the process Chan claims but also that it is not a methodology that a person skilled in the art would consider obvious from the information Chan disclosed**, Applicant analyzes the characteristics of the method of Chan and the reasons why said technology, even if in combination with Gillespie, neither discloses nor suggests the process claimed in this application.

In claim 7, Chan’s application claimed the following method:

7.- A method for the preparation of a solid, phytoactive, composition comprising:

- (a) forming an initial mixture comprising a phytoactive N-phosphonomethyl-N-carboxymethyl compound, a **solvent and a molten surfactant**, the surfactant being solid at ambient temperatures;
- (b) **removing solvent** from the said initial mixture to form a final mixture at a temperature above the melting point of the surfactant; and
- (c) **cooling** the said final mixture to a temperature below the melting point of the surfactant to form a N-phosphonomethyl-N-carboxymethyl composition which is solid at ambient temperature.

As the Examiner may have noticed, stage (a) in Chan’s method comprises mixing three ingredients: **a phytoactive compound** (which could be Glyphosate, or a salt thereof), **a solvent and a molten surfactant**.

Therefore, stage (a) of Chan's method discloses a mixture of ingredients **in liquid form** as both the solvent and surfactant are in liquid form. Consequently, it is a damp method.

Also, stage (a) of Chan's method is carried out at a **higher temperature than that of room temperature**, as the surfactant (which is solid at room temperature) must be in a molten state.

Furthermore, in stage (a) of Chan's method **no chemical reaction occurs between the components of the mixture**.

Therefore, stage (a) of the mixture in Chan's method is defined on the basis of four essential operative conditions, which are as follows:

- 1) **qualitative chemical composition;**
- 2) **mixing stage;**
- 3) **mixing temperature; and**
- 4) **chemical reactivity of the mixture.**

As the Examiner may prove, none of these four essential characteristics of Chan's method coincide with the characteristics of the method of instant application.

1) In fact, in instant application the chemical composition of the **initial** mixture of the ingredients is always different from the Chan's mixture in that in instant application Glyphosate, a surfactant and ammonium bicarbonate are mixed.

Ammonium bicarbonate, always present in the mixing stage of the process of instant application, is a component neither foreseen nor suggested in the mixture of ingredients of Chan's method. Chan's method only discloses the possibility of using ammonium Glyphosate as a component of the initial mixture.

Furthermore, the mixture of components in the method of instant application **does not include any solvent**, which is included as a necessary and indispensable component in Chan's claimed method.

2) In the process of instant application stage (a) comprises mixing three ingredients, which are **solid at room temperature**, and further are **substantially not provided with water**. Therefore, the process of instant application is a process carried out in dry solid form.

To the contrary, in Chan's method at least two ingredients are liquid (the solvent and molten surfactant) so that stage (a) of mixing is performed in a liquid or fluid form.

3) In Chan's method the mixing stage of ingredients must be performed at a temperature that is always higher to that of room temperature (around 25° C) as the surfactants (which are solid at room temperature) must be used molten.

4) At the mixing stage of the process of instant application two of the components of the mixture, Glyphosate and ammonium bicarbonate, chemically react to form ammonium Glyphosate *in situ*. This deals with a mixing process which comprises a solid-solid chemical reaction.

To the contrary, in Chan's method, there is no chemical reaction between the components of the mixture.

The significant previously commented differences between the mixing stages (a) of both processes directly have a direct connection on the characteristics of steps (b) of both methods.

In fact, while in Chan's method stage (b) refers to **an evaporation operation** of the solvent, in the process of instant application stage (b) comprises a **kneading or mixing operation** till complete homogeneity of the mixture.

Further, both stages (b) are carried out in different thermal conditions: while in the process of instant application kneading of the mixture is performed at room temperature, in Chan's method **removal of the solvent is performed at a temperature above the melting point of the surfactants.**

Finally, Chan's method requires a final stage (c) **for cooling the molten mixture** while in the process of instant application it is not necessary to cool the homogenous mixture of stage (b) which can be directly processed in stage (c) for its final conditioning as a powder, granules or scales.

The noteworthy differences there are between the Chan claims and the **process of instant application claims** not only back novelty of the process of instant application compared to the relevant document but also is the basis of the technical arguments that will allow to demonstrate a non-obvious condition of the process of instant application.

In fact, **analysing firstly the content of 11 experimental preparation examples of the phytoactive compositions described in detail in Chan's application (EP 0 206 537 A1) the following conclusions can be arrived, as:**

- All the experimental examples described in Chan's patent **strictly adjust** to the stages and operative conditions of the method claimed in said application.
- In stage (a) of all the examples a **molten surfactant and aqueous solutions of the phytoactive active principle** are used, i.e., that liquid mixtures are performed with all the ingredients, **at temperatures higher than that of room temperature (25° C).**
- In stage (b) of all the examples, **temperature conditions (90 - 100° C) much higher than the melting point of the surfactants are used and always under low pressure conditions (1 - 10 mmHg) for removing the solvent.**

- **In all the examples the product obtained must be removed from the container with a spatula and transformed into powder using a mortar.**

Comparing enunciation of these **objective** conclusions, based on the examples content and on claim 1 of Chan's application, one could question the reason which would have brought about a skilled in the art to deviate from Chan teachings and obviously imagine the process claimed in instant application if:

- **In none of the Chan's examples is a phytoactive composition prepared based on ammonium Glyphosate.**
- **None of the Chan's examples describes preparing an initial mixture with solid ingredients without water.**
- **None of the Chan's examples describes use of aqueous solutions of the active principle with water quantities lower than 40 % by weight.**
- **None of the Chan's examples describes preparing stage (a) of mixing ingredients at room temperature.**
- **None of the Chan's examples describes preparing initial mixtures of components wherein a chemical reaction is performed between the phytoactive compound and a neutralizing alkaline agent.**
- **In none of the Chan's examples is an ammonium bicarbonate and Glyphosate mixture used as initial components of the mixture of ingredients.**

Now, on page 7, last paragraph, of the Office Action, the Examiner has declared that the process claimed in instant application **would have been obvious** because:

“It would have been obvious to one skilled in the art to prepare additional useful compositions by using solid surfactant at ambient temperature because the reference teaches that when solid, the surfactant should be readily soluble. **Motivation to use solid surfactant has been provided because it teaches that it is important that surfactant is solid at ambient temperature**, i.e. it must be solid at the highest temperature at which the solid produce may be exposed before it is mixed with the diluents by the ultimate user. Such temperature is generally in the range of from – 20 to 50° C.”

Through this sentence the Examiner declares that Chan’s application would induce to one skilled in the art to use solid surfactants at ambient temperature to prepare additional solid compositions containing a PMCM compound such as a glyphosate salt.

This is **not true** because Chan’s application would always induce to one skilled in the art to use a solid surfactant for preparing a solid composition **wherein the PMCM compound is within the surfactant matrix.**

And this characteristic is clearly exposed in page 12, lines 1 to 5, of Chan’s application:

“The solid compositions produced in accordance with this invention are **characterized in that the PMCM compound forms an intimate mixture with the surfactant. The PMCM compound is initially dispersed throughout a surfactant matrix.** It is believed that **such an intimate dispersion prevents the absorption of moisture** by the PMCM compounds.”

Furthermore, this characteristic (an **intimate mixture with the surfactant**) is an **essential feature** of Chan’ invention as it was finally included in the first claim of Chan’s patent **EP 0 206 537 B1**:

*“1.- A method for the preparation of a solid, substantially non-hygroscopic, phytoactive composition comprising **an intimate mixture** of a phytoactive N-*

phosphonomethyl-N-carboxymethyl compound an a surfactant being solid at ambient temperature, characterized in that it comprises: ... "

Then, for achieving this objective of making a surfactant matrix containing the PMCM dispersed in said matrix **it would be always necessary to work in a liquid phase.**

In addition, as is stated in page 12, lines 6 to 22, and page 13, lines 1 to 26, of Chan's application, the liquid phase comes from a molten surfactant or from a solvent.

Therefore, starting from the specification of Chan's application, the one skilled in the art would never be induced to mix a PMCM, such ammonium glyphosate, with a solid surfactant because, in absence of a liquid phase, the resultant dry composition would always be a segregated mixture of two components, far away from what is taught and suggested by Chan.

Applicant respectfully submits that the Applicant process is not obvious for the one skilled in the art because Chan's application does not contain any teaching or suggestion to prepare a solid herbicidal composition mixing, in a dry way, glyphosate, ammonium bicarbonate and a solid surfactant.

The Applicant process is also not obvious for the one skilled in the art because Chan's patent does not contain any teaching or suggestion that discloses the unexpected properties (easy to mixture, kneading an extruding) of the resultant product from the mixture of these three solid compounds.

Applicant considers that from a careful reading of the content of the paragraphs the Examiner has cited (and analysed next) no information or suggestion can be deduced that backs the Examiner's opinion as to obviousness of the process claimed in instant application.

In fact, in paragraphs on page 3, lines 21-33, and page 4, lines 1-9 Chan's application only transcribes the method of claim 7 of Chan's application (or claim 1 of the corresponding EP patent), which content has previously been analysed, Applicant having demonstrated that said method does not allow one skilled in the art to obviously deduce the process of instant application.

In the following paragraphs on page 6, lines 16-33 and page 7, lines 1-2, the following physical properties of the surfactants are described that can be used in Chan's method: high melting point (above 50° C), absence of hygroscopicity, solubility of the diluents chosen for the final use of the composition, solubility in water and low formation of foam (particularly under vacuum).

In present application, the only important characteristic of the humectant that is induced from the application is that the humectant not only must be solid at room temperature but as powder so as to be included homogeneously in the test conditions (solid mixtures). Imagine as Chan says a molten humectant, this could not be applied in our process, so as to assure a homogeneous inclusion the process should be performed in moistened conditions.

However, all these physical properties of the surfactants that can be used in Chan's application do not defeat non-obviousness of the process of this application as although surfactants are used in the process of this application, only surfactants that are solid at 25° C are used, in the method of Chan's application the surfactants are always used molten, there being in said patent no information or suggestion that allows a skilled in the art to obviously imagine an initial stage of mixing the ingredients at room temperature.

Finally, in page 11, lines 19-31 of Chan's application the relation of the phytoactive component to surfactant are described, which are typically 10:1 to 1:10 preferably 4:1 to 1:2, and most preferably 2:1 to 1:1.

The Applicant's opinion, these references of Chan's application as regards a possible final composition of the phytoactive product do not either defeat non-

obviousness of the process claimed in instant application **as the subject-matter of this discussion is based on the novelty and inventive step characteristics of the method of instant application** as compared to Chan's method and not on the possible similarities and differences between the compositions of the products obtained by both methods.

In this regard, Applicant considers that, as the Examiner has declared, Chan's application could bring about a skilled in the art to prepare additional compositions to those disclosed in said patent using surfactants that are solid at room temperature, nevertheless the skilled in the art would have had no reason to use a different method that that disclosed in the description of Chan's application and in particular in its examples, wherein said surfactants are always used molten to form initial aqueous solutions containing the phytoactive principle.

Moreover, the description of Chan's application is clearly addressed to the description of a method wherein the initial mixture of the ingredients is always carried out in liquid form.

For example, lines 11 to 16 of page 12 of Chan's application indicates that the phytoactive compound (PMCM) is preferably dissolved or dispersed in the **solvent**, and when a salt of the phytoactive compound is prepared *in situ*, **said salt is prepared in presence of water**.

Definitively, the method described in detail in Chan's application induces a skilled in the art to always use a method in a humid manner to mix the initial ingredients.

Therefore, it is evident that the process claimed in the present application would not have been obvious to one skilled in the art since, without having examined the content of the present application, a person skilled in the art would not have considered obvious to substantially amend Chan's method:

- using a dry mixture of solid ingredients,

- kneading the mixture of ingredients at room temperature,
- preparing *in situ* a Glyphosate salt in the same reactor wherein the ingredients are mixed.

It is evident from Chan's application that it does not contain any suggestion or information that might have induced a person skilled in the art to bring about in an obvious manner so many simultaneous changes in the process described as to reproduce the presently claimed process and thereby attain, in an obvious manner too, a product having similar properties to those of the product given as examples in said patent.

After reading Chan's application, the skilled in the art would have been induced to discard the use of a solid surfactant as said process implies adding molten surfactant, homogenize in liquid form, remove the solvent by distillation under reduced pressure, cool, discharge and grind the mixture obtained. This method implies various unitary operations.

Chan's application proposes a complicated process from which the necessary tools could not be obtained which would lead to our invention: selection of a surfactant, equipment, energy saving to easily prepare in one step a mixture of ammonium glyphosate and surfactant, easy to mix, knead, granulate, extrude or flake.

The unexpected results does not consist in the herbicidal properties of the formulations obtained with the process of present application but precisely in **the unexpected simplicity and efficiency of the process as compared with the processes of the previous art.**

For these reasons, the Applicant's method would have never been obvious to one skilled in the art starting from the teachings of the opposed documents, and without having previously read the content of present application.

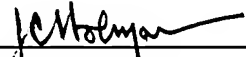
Therefore, the rejection under 35 U.S.C. § 103 has been overcome. Accordingly, withdrawal of the rejection under 35 U.S.C. § 103 is respectfully requested.

Having overcome all outstanding grounds of rejection, the application is now in condition for allowance, and prompt action toward that end is respectfully solicited.

Respectfully submitted,

JACOBSON HOLMAN PLLC

Date: April 10, 2009
(202) 638-6666
400 Seventh Street, N.W.
Washington, D.C. 20004
Atty. Dkt. No.: P69259US0

By 
John C. Holman
Registration No. 22,769